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ABSTRACT OF DISCLOSURE

This invention ~~relates to the~~ is the use of an aqueous solution in the preparation of an irrigating medium for use in the treatment of root canals. The aqueous solution is ~~characterized in that it is an~~ electro-mechanically activated solution prepared by means of electrolysis of an aqueous solution of a salt and including an aqueous anion-containing and an aqueous cation-containing solution. The invention also extends to a method for irrigating root canals ~~by means of~~ with the electro-mechanically activated solution, and an irrigating medium comprising the electro-chemically activated solution.

IN THE CLAIMS

1. [Cancelled]
2. [Cancelled]
3. (Previously amended) The method of claim 4, wherein the aqueous predominantly anion-containing solution and the aqueous predominantly cation-containing solution are prepared by means of electrolysis of an aqueous solution of a salt.
4. (Currently amended) A method for treating root canals, the method comprising the steps of: electrochemically activating an aqueous solution in an electro-chemical reactor comprising a through-flow, electro-chemical cell having two co-axial electrodes with a co-axial diaphragm between them so as to separate an annular inter-electrode space into cathodic and anodic chambers, wherein the electro-

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chemically activated solution ~~includes~~produces an aqueous predominantly anion-containing solution and an aqueous predominantly cation-containing solution having microcidal, as well as dispersing and surfactant, properties; and applying the aqueous ~~and~~ predominantly anion-containing solution and aqueous predominantly cation-containing solution either concurrently or successively to a root canal.

5. (Previously amended) The method of claim 4 wherein the anion-containing solution is produced from a 10% aqueous NaCl solution, electrolysed to produce separable activated or excited radical cation and radical anion species, the anion-containing solution having a redox potential of up to about +1170 mV.

6. (Previously amended) The method of claim 4 wherein the anion-containing solution has a pH of about 2 to 7 and a redox potential of about +1170 mV.

7. (Previously amended) The method of claim 4 wherein the cation-containing solution has a pH of between 7 and 13 and a redox potential of about -980 mV.

8. (Currently amended) A root canal irrigating medium comprising a ~~substantially chlorine free~~an electro-chemically activated, aqueous saline solution ~~characterized in that is electrochemically activated in an electro chemical reactor comprising a cylindrical through flow, electro chemical cell having two co axial electrodes with a co axial diaphragm between them so as to separate an annular inter electrode space into a cathodic and an anodic chamber, wherein the electro-chemically activated aqueous solution includes both an aqueous predominately anion-containing solution~~ having a pH of 2 to 7 and a redox potential of about +1170mV, and a separate aqueous predominantly

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~~cation containing solution having microdial as well as dispersing and surfactants properties, the irrigating medium further being characterized wherein its properties are modulated by separate and independent recirculation of either one or both of the predominately anion-containing solution and the predominately cation-containing solution through a counter electrode chamber a pH of 7 to 13 and a redox potential of about -930mV.~~

9. (Currently Amended) A method of irrigating root canals, the method comprising the steps of electrochemically activating an aqueous solution in an electro-chemical reactor comprising a through-flow, electro-chemical cell having two co-axial electrodes with a co-axial diaphragm between them so as to separate an annular inter-electrode space into a cathodic and an anodic chamber, such that the electro-chemically activated aqueous solution includes ~~separable and both of~~ an aqueous predominantly anion-containing and an aqueous predominantly cation-containing solutions having microcidal, as well as dispersing and surfactant properties; and applying the aqueous predominantly anion-containing and aqueous predominantly cation-containing solution either concurrently or successively to a root canal for irrigation purposes.

10. (Currently amended) The method as claimed in claim 9~~11~~ further including the steps of first applying cation-containing solution to the root canal, aimed at removing organic film and debris covering the inner walls of the root canal, and thereafter applying an anion-containing solution to the root canal, aimed at disinfecting the inner walls of the root canal and dentinal tubules.

11. (New Claim) The irrigating medium of claim 8, wherein the aqueous predominantly anion containing solution includes one or more activated

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radical species selected from the group consisting of  $\text{ClO}$ ;  $\text{ClO}^\cdot$ ;  $\text{HClO}$ ;  $\text{OH}^\cdot$ ;  $\text{HO}_2^\cdot$ ;  $\text{H}_2\text{O}_2$ ;  $\text{O}_3$ ;  $\text{HO}^\cdot$ ;  $\text{S}_2\text{O}_8^{2-}$  and  $\text{Cl}_2\text{O}_6^{2-}$ .

12. (New Claim) The irrigating medium of claim 8, wherein the aqueous predominantly cation containing solution includes one or more activated radical species selected from the group consisting of  $\text{NaOH}$ ;  $\text{KOH}$ ;  $\text{Ca}(\text{OH})_2$ ;  $\text{Mg}(\text{OH})_2$ ;  $\text{HO}^\cdot$ ;  $\text{H}_3\text{O}_2^\cdot$ ;  $\text{HO}_2^\cdot$ ;  $\text{H}_2\text{O}_2^\cdot$ ;  $\text{O}_2^\cdot$ ;  $\text{OH}^\cdot$ ;  $\text{O}_2^{2-}$ .